REMARKS

Claims 1-31 are rejected. Claims 32-46 are withdrawn from consideration. Claims 1-31, 32-41, and 42-46 are subject to restriction and/or election requirement. Claims 1, 15, 29, and 30 have been amended. Claim 2 has been canceled. Claims 1, 3-31 are presently pending in the application. Favorable reconsideration of the application in view of the following remarks is respectfully requested.

The basis for the amendment of claim 1 is found on pg. 13, lines 9-26 of the specification and claim 2 as originally filed. The basis for the amendment of claim 15 is found in claim 14 as originally filed. The basis for the amendment of claim 29 is found on pg. 11, line 1 of the specification as originally filed. The basis for the amendment of claim 30 is claim 3 as originally filed.

Restriction under 35 USC § 121:

The Examiner has required restriction to one of the following inventions under 35 U.S.C. § 121: I. Claims 1-31, drawn to an imaging element, classified in Class 430, subclass 496, II. Claims 32-41, drawn to a method of making a support material, classified in Class 427, subclass 274, or III. Claims 42-46, drawn to a method of making a support material, classified in Class 156, subclass 244.24.

In order that this response be complete, the Applicant confirms the telephone election, made with traverse, of April 6, 2005 and hereby elects to prosecute the invention of Group I, claims 1-31. Claims 32-46 are withdrawn from further consideration by the Examiner, 37 CFR. 1.142(b), as being drawn to a non-elected invention.

Rejection of Claims 15, 29 and 30 under 35 USC § 112:

The Examiner has rejected Claims 15, 29 and 30 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention, as, in claim 15, there is no antecedent basis for the term "said flange sheet" since parent claims 1 and 3 do not set forth flange sheets on the back sides, in claim 30, there is no antecedent basis for the term "said core" since parent claims 26 and 1 do not set forth core layers, and as, in claim 29, the term "located said flange layer" is indefinite.

The claims have been amended to correct the antecedent basis and a typographical omission.

<u>Rejection of Claims 1-31 Under 35 U.S.C. §102 or 103(a):</u>

The Examiner has rejected Claims 1-31 under 35 U.S.C. 102(a) or (e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sunderrajan et al. '184, indicating that Sunderrajan et al. disclose imaging elements with supports comprising polymer foam layers and flange layers, the supports may be made from flange layers that are extrusion coated on a polymer foam layer in contact with a textured chill roll, since the use of a textured chill roll on a flange layer is a method disclosed in applicants' specification for making the flange layer a "camouflaging" flange layer, the textured flange layer would inherently hide or camouflage pits or voids of the polymer foam core at least to some extent resulting in the foam polymer cores of Sunderrajan et al. having surface roughness values for foamed polymer cores as disclosed in applicants' specification. The Examiner indicates that, if Sunderrajan et al. do not anticipate the instant claims, then it would at least be obvious to one skilled in the art to use the disclosed textured chill rollers as the chill rollers for extrusion coating in Sunderrajan et al.

Sunderrajan discloses a method of forming a sheet comprising extruding a polymer material comprising an incompatible material and a foaming agent, cooling the extruded material, stretching said extruded material in at least one direction for use as imaging media, preferably, supports for photographic, ink jet, thermal, and electrophotographic media.

The present invention relates to an imaging element comprising at least one imaging layer and a support. The support comprises a layer having a surface roughness of at least 1.4 microns and at least one pit camouflaging flange layer between the support and an imaging layer applied thereon. The spatial frequency of surface features, having peak to valley heights in the range from 1.1 to 3.4 microns, of said pit camouflaging flange layer is from .01 mm to 10 mm, which results in a surface roughness of less than 1.1 μm of the imaging element as a whole.

A claim is anticipated only if each and every element as set forth in the claim is found either expressly or inherently described in a single prior art reference. The identical invention must be shown in as complete detail as is

contained in the claim. Sunderrajan is silent with respect to surface roughness and spatial frequency of surface features. Sunderrajan also fails to disclose that a support, having a surface roughness of at least 1.4 microns, may be modified to produce an imaging element with a surface roughness of less than 1.1 μm of the imaging element as a whole and which appears to be pit-free, by applying a pit camouflaging layer with a spatial frequency of large surface features of from .01 mm to 10 mm. Neither would the textured flange layer inherently hide or camouflage pits or voids of the polymer foam core at least to some extent resulting in the foam polymer cores of Sunderrajan et al. having surface roughness values for foamed polymer cores as disclosed in applicants' specification. As can be seen from Table 1 (pg. 26) of the present specification, conventional polymeric flange layers, when applied to foam cores, may provide reduced surface roughness, put still contain pits which affect the visual appears of roughness. (See Control 2) Increasing the thickness of the flange layers may reduce surface roughness, but does not eliminate the appearance of pits. However, when the presently claimed flange layer with a spatial frequency of large surface features of from .01 mm to 10 mm was applied to the same supports, even though surface roughness was not reduced as much, no pits were seen. Therefore, the flange sheets of Sunderrajan do not inherently camouflage pits.

To establish a prima facia case of obviousness, there must be some suggestion or motivation in the reference or in the general knowledge available to one skilled in the art to modify the reference, there must be a reasonable expectation of success, and the prior art reference must teach or suggest all the claim limitations. Sunderrajan fails to teach or disclose the use of a flange layer with a spatial frequency of large surface features of from .01 mm to 10 mm to hide the appearance or core pits in an imaging element. One of ordinary skill in the art would not expect a flange layer with a spatial frequency of large surface features of from .01 mm to 10 mm to reduce the appearance of pits based on the teaching of Sunderrajan, as Sunderrajan is silent with regard to the spatial frequency of large features present in the flange layers. Therefore, the Sunderrajan reference fails to indicate that the use of a layer having a particular spatial frequency of large features would prove successful to camouflage pits and the visual appearance of pits. Sunderrajan also fails to teach all of the limitations of the present claims, since the references both fail to disclose the spatial

frequency of surface features, having peak to valley heights in the range from 1.1 to 3.4 microns, in the pit camouflaging flange layer is from .01 mm to 10 mm.

Rejection of Claims 1-31 Under 35 U.S.C. §102(b) or 103(a):

The Examiner has rejected Claims 1-31 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Dontula et al. '976 or Dontula et al. '659, since Dontula et al. '976 and Dontula et al. '659 disclose imaging elements with supports comprising upper flange sheets on polymer foam cores wherein the upper flange sheets comprise paper or opaque polymer sheets which hide or camouflage pits in the polymer foam core and the polymer foam cores would inherently have roughness values as disclosed for polymer foam cores in applicants' specification. In addition, the Examiner states that, if Dontula et al. '976 or Dontula et al. '659 do not anticipate the instant claims, then it would at least be obvious to one skilled in the art to use the disclosed paper or opaque polymer flange layers as the required upper flange layers on the polymer foam cores of Dontula et al. '976 and Dontula et al. '659.

Dontula '976 discloses an imaging member comprising an imaging layer and a closed cell foam core sheet base wherein the base comprises the core and, adhered thereto, an upper and lower flange sheet. The imaging member has a stiffness of between 50 and 250 millinewtons and at least one layer of said base comprises whitening agent and said element has L* of greater than 90.4. This invention is used as an imaging media, especially for photographic, ink jet, thermal, and electrophotographic media.

Dontula '659 discloses an imaging member comprising an imaging layer and a closed cell foam core sheet base with an upper and lower flange sheets adhered to the core, wherein the upper flange sheet comprises oriented polystyrene or polypropylene polymer wherein the modulus of said upper flange sheet is between 1000 and 3500 MPa and the roughness of the upper surface of said base is less than 0.4 μm Ra. This invention relates to imaging media, especially supports for photographic, ink jet, thermal, and electrophotographic media.

The present invention relates to an imaging element comprising at least one imaging layer and a support. The support comprises a layer having a surface roughness of at least 1.4 microns and at least one pit camouflaging flange layer between the support and an imaging layer applied thereon. The spatial

frequency of surface features, having peak to valley heights in the range from 1.1 to 3.4 microns, of said pit camouflaging flange layer is from .01 mm to 10 mm, which results in a surface roughness of less than 1.1 μm of the imaging element as a whole.

A claim is anticipated only if each and every element as set forth in the claim is found either expressly or inherently described in a single prior art reference. The identical invention must be shown in as complete detail as is contained in the claim. Dontula '976 and Dontula '659 fail to disclose that a support, having a surface roughness of at least 1.4 microns, may be modified to produce an imaging element with a surface roughness of less than 1.1 μm of the imaging element as a whole, by applying a pit camouflaging layer with a spatial frequency of large surface features of from .01 mm to 10 mm. Neither would the flange layers of Dontula '976 and Dontula '659 inherently hide or camouflage pits as disclosed in applicants' specification. As can be seen from Table 1 (pg. 26) of the present specification, conventional polymeric flange layers, when applied to foam cores, may provide reduced surface roughness, put still contain pits which affect the visual appears of roughness. (See Control 2) Increasing the thickness of the flange layers may reduce surface roughness, but does not eliminate the appearance of pits. However, when the presently claimed flange layer with a spatial frequency of large surface features of from .01 mm to 10 mm was applied to the same supports, even though surface roughness increased, no pits were seen. Therefore, the flange sheets of Dontula '976 and Dontula '659 do not inherently camouflage pits.

To establish a prima facia case of obviousness, there must be some suggestion or motivation in the reference or in the general knowledge available to one skilled in the art to modify the reference, there must be a reasonable expectation of success, and the prior art reference must teach or suggest all the claim limitations. Dontula '976 and Dontula '659, singly and in combination fail to teach or disclose the use of a flange layer with a spatial frequency of large surface features of from .01 mm to 10 mm to hide the appearance or core pits in an imaging element. One of ordinary skill in the art would not expect a flange layer with a spatial frequency of large surface features of from .01 mm to 10 mm to reduce the appearance of pits based on the teaching of Dontula '976 and Dontula '659. Dontula'976 is silent with regard to the spatial frequency of large

features present in the flange layers. Dontula '659 requires the roughness of the upper surface of said base is less than 0.4 μm Ra and teaches "*It is beneficial that the smooth high modulus flange layers provide isolation of the rough foam core from the imaging layer.*" Col. 8, lines 51-53. Further, Dontula '659 discloses "*The features of a good surface that are important can be shown to have a size in the plane of the sheet of from 0.01 to 1.0 mm. This relates to the lateral pitch of the surface bumps and not to the number that can be used to measure surface roughness.*" (col. 8, lines 62-66), indicating that surface features and surface roughness values are not interchangeable. Dontula '659 further teaches that "*The gloss has been found to relate to the surface features remaining after coating that cause specular light reflection. Further study has proven that the surface under the emulsion has a very large effect on the resultant emulsion or gel texture and, therefore, has to have particular qualities to insure adequate "gloss".*" (col. 8, lines 56-61), indicating that Dontula teaches control of the underlying core roughness by applying smooth-surface layers with smaller surface features, not by applying a layer with a particular spatial frequency of large features to camouflage pits and the visual appearance of pits. Therefore, the Dontula references fail to indicate that the use of a layer having a particular spatial frequency of large features to camouflage pits and the visual appearance of pits. Dontula '976 and Dontula '659 also fail to teach all of the limitations of the present claims, since the references both fail to disclose the spatial frequency of surface features, having peak to valley heights in the range from 1.1 to 3.4 microns, in the pit camouflaging flange layer is from .01 mm to 10 mm.

In fact, Dontula '659 teaches away from the present invention. Dontula '659 indicates that "*Features with a lateral size of 0.1 to 1.0 mm are controlling factors for prevention of excessive light scattering, or loss in gloss, in resultant coatings.*" (Col 9, line 32-35), not the presently claimed surface features with peak to valley heights in the range from 1.1 to 3.4 microns. In the examples, Dontula '659 utilizes "*A chill roller with a surface roughness of 0.19 μ Ra was used to form the surface of the face (imaging) side.*", relying on a smooth roller to produce a very smooth surface, lacking in large features at a particular spatial frequency to hide pits. Col. 15, lines 21-22, 36-37, 51-52, and 61-62. Dontula '659 also indicates that "*It has been shown in Examples 3 and 4 that foam with a polyethylene layer or that foam with a thin layer of oriented polystyrene sheet*

cannot provide an adequate surface for gloss apparently because they cannot hide the roughness of the foamed layers underneath them. Example 2 demonstrates the value of this Invention because a usable glossy surface was obtained if a sufficiently thick layer of strong oriented polystyrene sheet was applied to the foam layer. The power spectrum of the thick and thin OPS assemblies of Examples 2 and 3 shows that the thin OPS sample had more roughness at low frequencies or larger feature sizes, as would be expected if the roughness difference between the samples was due to isolation of the rough foam; that is, the larger features would be more likely to show through than the small features." Col. 16, lines 12-25. Table 1 (pg. 26) of the present specification indicates that simply increasing the thickness did not result in a pit-free surface, when, in fact actually increasing the surface roughness of the flange produced a support apparently free from pits, provided the spatial frequency of large features was confined to the claimed range.

The present invention also provides surprising results. As can be seen from Table 1, supports having a flange layer with a spatial frequency of from .01 mm to 10 mm for surface features, having peak to valley heights in the range from 1.1 to 3.4 microns provides a rougher surface than conventional imaging supports of foam core with flange layers (Controls 2 and 3). Surprisingly, Sample 5 (Invention) had no apparent pits, while the "smoother" Control Samples 2 and 3 had apparent pits.

The Examiner also indicates that the term "camouflage" is not defined in the claims or specification to distinguish over opaque flange sheets which would hide the polymer foam cores. The claims and specification clearly state that the camouflaging layer is a "pit" camouflaging layer. The specification also indicates that "*By imparting a roughness pattern with a given frequency to the surface of the polymer coated on the foam core, roughened surface provides background light-scattering, thereby camouflaging the pits. The visual noise created by the patterned chill roller hides or camouflages the pits.*" Pg. 15, lines 13-17. While opaque flange sheets may hide the appearance of the core, as indicated in the specification, these opaque sheets, when applied to a core, will follow the pit contour of the underlying core, replicating the surface pit topography of the core in the surface topography of the flange layer coated over the core. The present invention does not visually hide the core, but rather sets up

a visual interference pattern in the flange layer to block the appearance of the core layer pits. The present invention need not hide the core, only the pits on the surface of the core.

It is believed that the foregoing is a complete response to the Office Action and that the claims are in condition for allowance. Favorable reconsideration and early passage to issue is therefore earnestly solicited.

Respectfully submitted,

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Enclosures: Replacement Figures 1-2
Copies of Formal Drawings

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